PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 20031022	**FOR FURTHER ACTION** See Form PCT/IPEA/416	
International application No. PCT/FI 2004/000242	International filing date *(day/month/year)* 21.04.2004	Priority date *(day/month/year)* 23.04.2003
International Patent Classification (IPC) or national classification and IPC C22B 3/22, C02F 1/62, C02F 9/00, B01D 37/02		
Applicant Outokumpu Oyj et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 1 sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))
      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
17.02.2005	17.03.2005
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Mårten Hulthén/MP Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/FI 2004/000242

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:

pages 1-5 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 7 received by this Authority on 17.2.2005

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/FI 2004/000242

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-5	YES
	Claims		NO
Inventive step (IS)	Claims	1-5	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-5	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Amended claims 1-5 were filed on 17 February 2005.

Documents considered as being of particular relevance:

D1 WO03/002774
D2 US4128617
D3 SU827424
D4 EP0020904
D5 WO00/17407
D6 US5120447

In order to improve filterability of fine-grained waste material generated in a metallurgical industry, gypsum-containing waste material of a bigger particle size is added before filtration.

The claims have been amended to such an extent that all the documents cited above have been reconsidered not to be of particular relevance. The method is novel in regard to each of the documents. Documents D1, D2, D5 and D6 do not show the addition of gypsum precipitate as stated in claim 1. D3 does not show that gypsum is added singularly or the significance of the proportions and the particle size. D4 does not relate to the metallurgical industry.

The stated differences imply improvements as to the filterability of iron precipitate that has been obtained during the production of zinc.

Consequently, the method as defined by claims 1-5 is considered to involve an inventive step and is also considered top fulfil the criteria of industrial applicability.

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PATENT CLAIMS

1. A method to improve the filterability of the first fine-grained waste material generated in a metallurgical industry, **characterized in that** before filtration fine-grained gypsum precipitate waste material formed in the same process is added in the first waste material, which is an iron precipitate generated during the fabrication of zinc, the amount of the gypsum precipitate to be added is 10 – 30 % of the amount of the iron precipitate, a particle size of the iron precipitate is in the region of less than 30 µm and the particle size of the gypsum precipitate being at least twice as large as the particle size of the iron precipitate, and the precipitates remain stable in the same kind of conditions.

2. A method according to claim 1 or 2, **characterized in that** the first waste material is jarosite precipitate.

3. A method according to claim 1 or 2, **characterized in that** the first waste material is goethite precipitate.

4. A method according to claim 1 or 2, **characterized in that** the first waste material is hematite precipitate.

5. A method according to claim 1, **characterized in that** the particle shape of one waste material is spherical and the other needle-shaped.